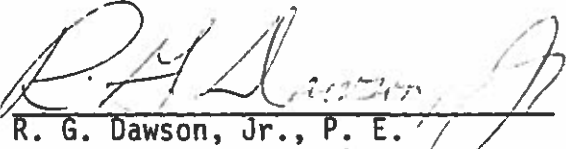


FEASIBILITY STUDY

NC 16, From the Catawba River to Near Wilkes  
County Line, Alexander County  
R-2403

Prepared by  
Planning and Research Branch  
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I. DESCRIPTION

This report covers a preliminary study of the proposed upgrading of the subject road to an adequate two-lane facility. As shown on Figure 1, this study extends from the Catawba River northward across Alexander County to SR 1337 near the Wilkes County line. Due to a previous upgrading of NC 16 (with paved shoulders and climbing lanes) from SR 1337 for 2.5 miles to Wilkes County Line, the actual northern terminus of this project is SR 1337. The total recommended project length is 14.5 miles. The project is included in the current Transportation Improvement Program (T.I.P.) for feasibility study and/or right-of-way protection and is not currently funded.

II. PURPOSE OF PROJECT

Existing Route Characteristics

NC 16 appears on the Taylorsville Thoroughfare Plan (adopted 1982) as an existing major thoroughfare, and functions as one of the major north-south routes through Alexander County. Outside the thoroughfare planning area, NC 16 is designated as a minor rural arterial in the County Functional Classification Plan.

The studied section of road was constructed in the 1920's and has a basic pavement width of 22 feet with a general shoulder width of 5 feet. In Taylorsville, NC 16 is a common route with NC 90 and has a 30 to 40-foot variable curb and gutter section.

Horizontal alignment is fair for the most part. There are numerous curves, with 5 ranging from the 6° maximum limit for safe travel at 55 mph to 12° (40 mph). The vertical alignment is rolling with maximum grades up to 6°. The combination of curving and rolling alignments makes safe passing difficult.

Two concrete bridges are located on the studied route. They are listed as follows with pertinent information:

<u>Bridge No.</u>	<u>Location</u>	<u>Length (Ft.)</u>	<u>Width (Ft.)</u>	<u>Age (Yrs.)</u>	<u>Rating (New Bridge=100)</u>
139	Catawba River	892	20	61	53.5
4	Little River	262	20	62	54.0

Both of the bridges listed above are in the 1988-1996 Transportation Improvement Program for rehabilitation or replacement. The Catawba River bridge has the T.I.P. number B-2208, while the Little River bridge is assigned the number B-2203.

The existing facility traverses rolling terrain. Except for the Taylorsville area, adjacent land use is a rural mixture of woodlands, pastures, and development. Light to moderate density development, primarily residences with some businesses, churches, and a school is found along NC 16. Within Taylorsville, roadside development is much denser requiring a speed limit of 35 mph on NC 16. Speed limits on NC 16 outside of the Taylorsville area are 45 and 55 mph.

### Traffic Volumes, Capacity, and Accident Record

Current traffic volumes range from a low of 3000 vehicles per day (vpd) near the Wilkes County line to a high of 7000 vpd in Taylorsville. The traffic volume near the bridge over the Catawba River is 6000 vpd. By the year 2010, it is estimated that traffic volumes will reach 10,000 vpd near the Catawba River, 11,200 vpd in Taylorsville, and 4800 vpd near the northern project limit. The existing predominantly 22-foot pavement on rolling terrain can carry approximately 4700 vpd at a desirable level of service C.

Accident data for the past 3 years reveals a total of 166 accidents on the project length (excluding Taylorsville). This yields an accident rate of 178 accidents per hundred million vehicle miles. This is less than the statewide accident rate average of 214 over the same period for two-lane rural NC routes. The predominant accident types were rear-end collisions and running off the road.

The accident rate within the Taylorsville Corporate Limits was 1729 accidents per hundred million vehicle miles, resulting from a total of 92 accidents that occurred over the previous 3 years. This is more than the statewide accident rate average of 285 accidents per hundred million vehicle miles. The predominant accident types in Taylorsville were rear-end and angle collisions.

### Need for Project

Although the existing road has no apparent critical capacity problems at this time, the route does have undesirable features that limit passing opportunities and reduces driving comfort and safety. Roadway and alignment upgrades are needed to bring the route up to modern standards and accommodate future traffic growth.

## III. RECOMMENDATIONS AND COSTS

The recommended upgrades to NC 16 reach from the southern limit just north of the Catawba River to the northern terminus at SR 1337, excluding the Taylorsville area. Improvements do not include the bridges over the Catawba River and Little River which would be improved under projects B-2208 and B-2203, respectively.

At Taylorsville, NC 16 joins NC 90 on a common route for approximately 0.6 mile. The Transportation Improvement Project R-1016 addresses a relocation of NC 90 to the south of Taylorsville (see Figure 2) that intersects NC 16 approximately 0.6 mile south of SR 1100. An interchange

is planned at this junction, and related improvements to NC 16 extend 0.2 mile north and south. The southern project limit of this interchange is the limit of the NC 16 improvements south of Taylorsville. Due to existing road facilities and development, and anticipated future traffic volumes, no improvements are recommended from the above mentioned interchange through town to the northwest junction of NC 16 and NC 90.

Along this project, there are recommended curve alignment changes based upon field observations and aerial photographs. These alignment changes are shown on an aerial mosaic on file in the Planning and Research Branch. No grade changes are anticipated throughout the project.

Recommended cross section for the two-lane upgrading is 28-foot pavement, including 2-foot paved shoulders, with minimum 6-foot soil shoulders. Additional right-of-way will be required to accommodate the improvements. For cost estimate purposes, a symmetrical 80-foot right-of-way plus easements was used, generally following existing location. Where realignment of curves is recommended, an estimated 120-foot right-of-way was used.

The total estimated cost of the recommended improvements is \$17,500,000, including \$12,700,000, for roadway construction and \$4,800,000, for right-of-way. Cost estimates were prepared by the Preliminary Estimate Engineer and the Right-of-Way Branch.

#### IV. ALTERNATIVES

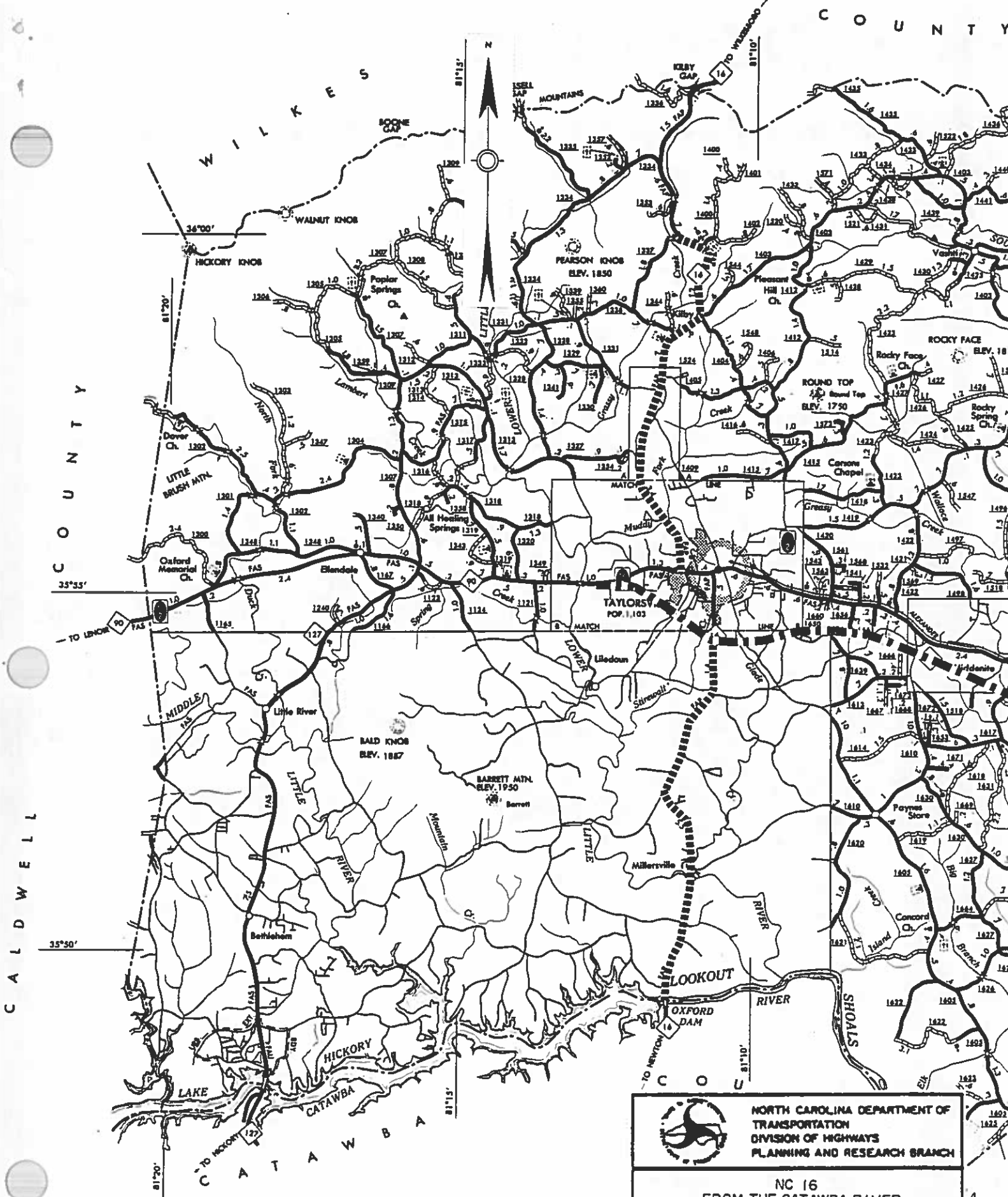
A possible alternative to the existing routing of NC 16 through Taylorsville is to utilize the NC 90 Bypass relocation for a southwest route around the town (see Figure 2). When the Bypass is completed, traffic traveling south to north on NC 16 can utilize the Bypass west-bound to Liledoun Road (SR 1110) which aligns with NC 16 north of NC 90. This would remove NC 16 traffic from the delays and congestion in downtown Taylorsville. Liledoun Road has adequate roadway widths to accommodate the additional NC 16 traffic, if rerouting of NC 16 along NC 90 Bypass and Liledoun Road is desired.

#### V. OTHER COMMENTS

Negative environmental impacts of the project are: (1) loss of some farmland and woodland; (2) loss of some wetlands at stream crossings; and (3) relocation of approximately 13 residences and 6 businesses.

If this project is to be implemented at a future date, all feasible alternatives and their associated impacts will have to be evaluated in a planning and environmental document prior to that time, and a final decision made as to the most appropriate improvement.


MH/rm



**LEGEND**

----- RECOMMENDED IMPROVEMENTS

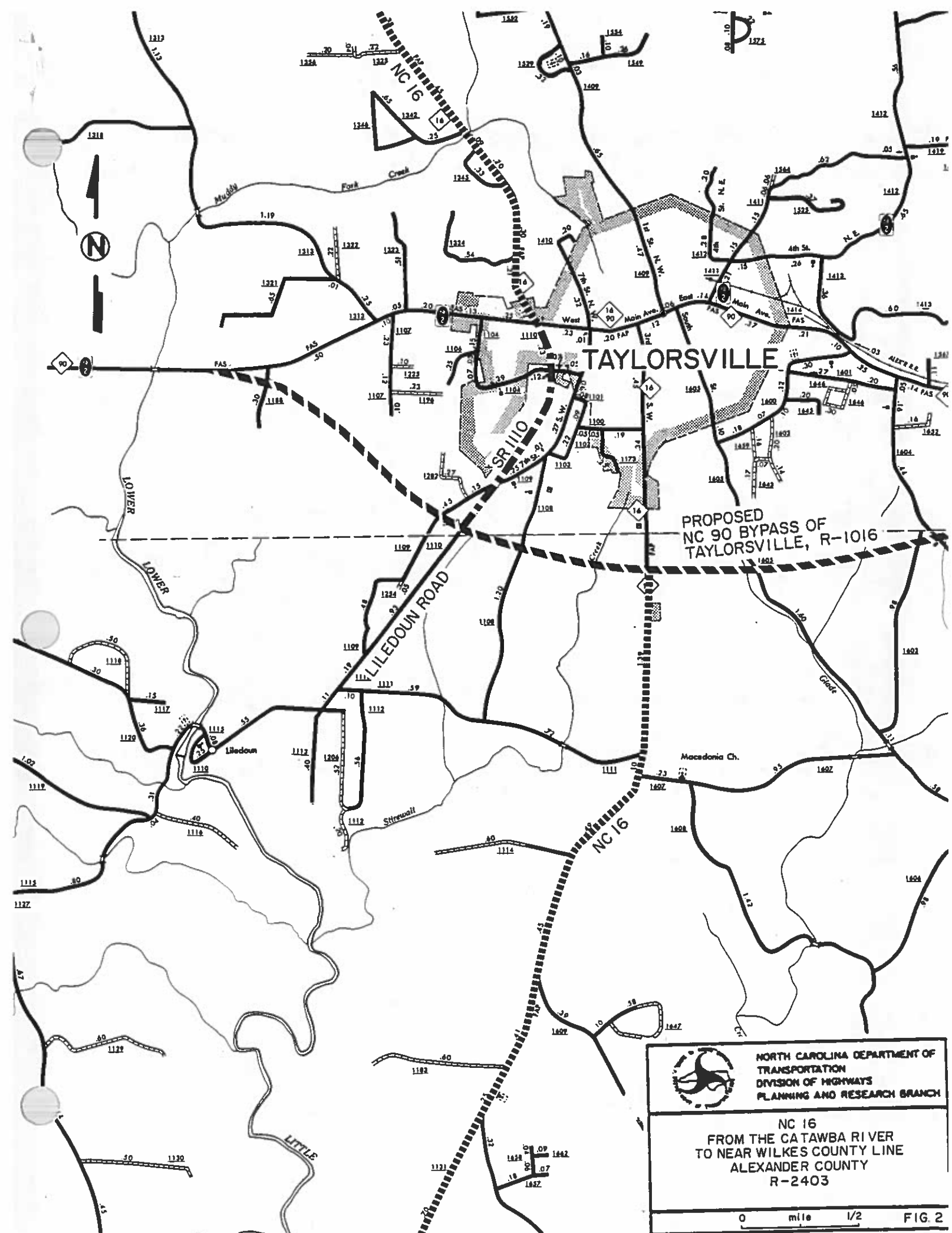
===== PROPOSED NC 90 RELOCATION


 NORTH CAROLINA DEPARTMENT OF  
TRANSPORTATION  
DIVISION OF HIGHWAYS  
PLANNING AND RESEARCH BRANCH

NC 16  
FROM THE CATAWBA RIVER  
TO NEAR WILKES COUNTY LINE  
ALEXANDER COUNTY  
R-2403

0 mile 2

FIG. 1



 NORTH CAROLINA DEPARTMENT OF  
TRANSPORTATION  
DIVISION OF HIGHWAYS  
PLANNING AND RESEARCH BRANCH

NC 16  
FROM THE CATAWBA RIVER  
TO NEAR WILKES COUNTY LINE  
ALEXANDER COUNTY  
R-2403

0 mile 1/2 FIG. 2